

## Convex Mirror:

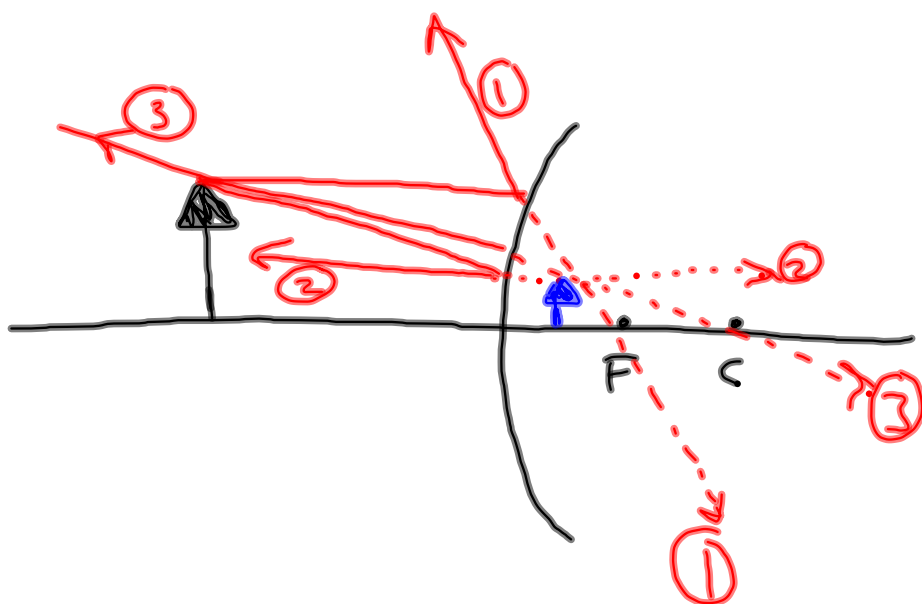


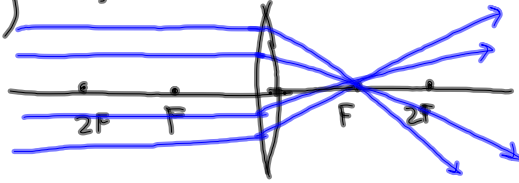
Image: Smaller, virtual, upright

Quiz Thursday on  
Mirrors and lenses

HW: p. 1044: 7, 9, 11, 13

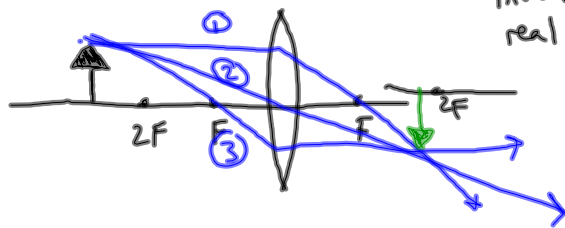
## Converging Lenses:

1) Object at  $\infty$



2) Outside  $2F$

Image: smaller,  
inverted,  
real

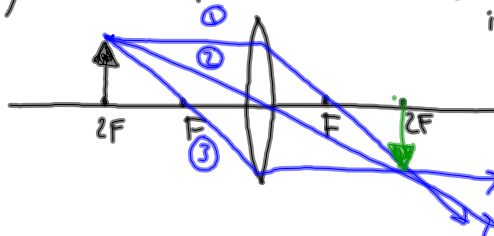


## Rays for Lenses:

- 1) parallel to principle axis, through backside  $F$
- 2) through center of lens and continues straight
- 3) through frontside  $F$ , parallel to principle axis

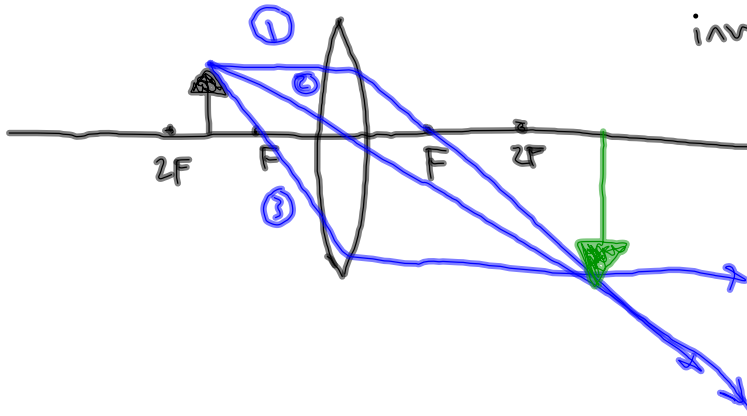
3) On  $2F$

Image: same size,  
inverted,  
real



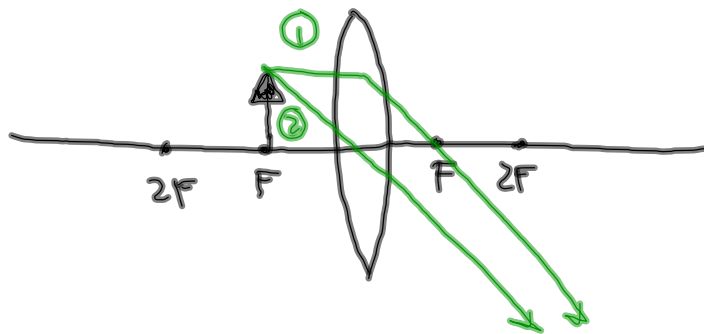
4) Between  $F$  and  $2F$

Image: larger,  
inverted, real



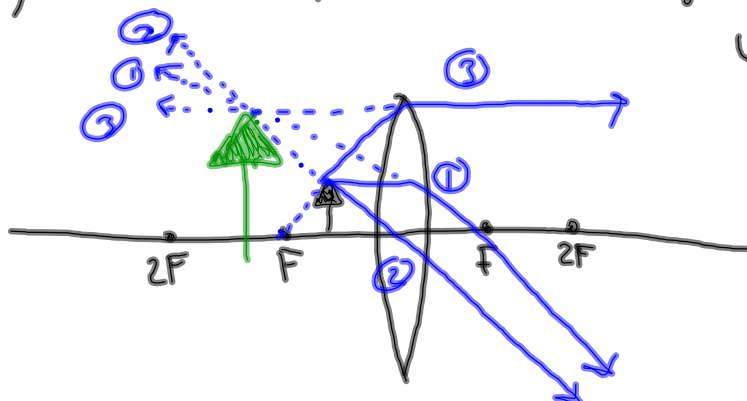
5) On  $F$

Image: doesn't  
exist



6) Inside  $F$

Image: Virtual,  
Upright,  
larger



## Sign Conventions for Lenses:

	<u>+</u>	<u>-</u>
$d_o$	real object in front of lens	real obj. in back of lens
$d_i$	real image in back of lens	Virtual image in front of lens
$f$	converging lens	diverging lens

## Diverging Lens:

- Doesn't matter where object is.

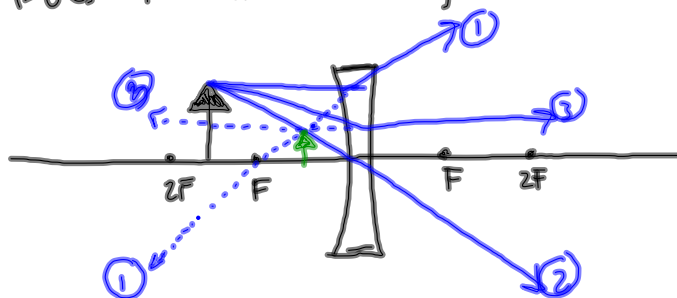


Image: Upright, virtual, smaller

• Same equations apply